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Synchronous Multiple Colorectal Adenocarcinomas

HIDEYA TAKEUCHI, MD,[1]* TOMOHIRO TODA, MD,[1] SUSUMU NAGASAKI, MD,[1] TOYOKAZU KAWANO, MD,[1] YOSHIKAZU MINAMISONO, MD,[1] YOSHIHIKO MAEHARA, MD,[2] AND KEIZO SUGIMACHI, MD, FACS[2]

[1]*Institute of Gastroenterology of Hofu, Hofu, Yamaguchi, Japan*

[2]*Department of Surgery II, Faculty of Medicine of Kyushu University, 3-1-1 Maidashi, Higashi-ku, Fukuoka, Japan*

Background: The object of the present work was to characterize clinical features and the quality of preoperative examinations in patients with synchronous colorectal carcinomas, and to compare the incidence of associated benign polyps with our findings in patients with a single malignant lesion.

Method: A retrospective evaluation of 225 patients with primary colorectal carcinoma revealed 9 cases (4.0%) of synchronous colorectal carcinomas.

Results: The synchronous colorectal carcinomas were located in the same anatomical segment in 7 patients and were divided into different segments in 2 patients. The accuracy of preoperative diagnosis was 55.6% by endoscopy alone and 66.7% by double contrast barium enema (DCBE) alone, while the rate was 77.8% when colonoscopy and DCBE were combined. There was a higher incidence of associated benign polyps in the group with synchronous colorectal carcinomas (55.6%) versus 28.7% for a single carcinoma ($P < 0.05$). The main reason why multiple lesions could not be identified preoperatively was that the distal lesions prevented examination of the proximal lesions.

Conclusions: At the time of surgical resection, it is important to ascertain preoperatively whether or not a second lesion exists. If synchronous polyps are present in patients with synchronous colorectal carcinomas, they should be ablated to reduce the risk of metachronous colorectal carcinoma.

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KEY WORDS: **multiple colorectal carcinoma; synchronous colorectal carcinoma; preoperative examination; colorectal polyp**

INTRODUCTION

Multiple carcinomas often occur in the colon and rectum [1,2], and the reported incidence ranges from 1.5% to 7.6% [3,4]. As it is often difficult to detect all these multiple lesions preoperatively, they often necessitate additional future surgical treatment, when they are discovered later. Recently, the techniques of colon examination, including a double contrast barium examination (DCBE) and colonoscopy have been greatly improved. DCBE is usually done to examine the large bowel, but synchronous tumors have been missed in some cases [5]. Colonoscopy is more accurate than DCBE to detect a small adenoma [6], but lesions may not be examined if the lumen is narrowed due to the presence of an advanced colorectal carcinoma. Other investigators proposed that early metachronous colorectal carcinomas actually represent synchronous colorectal carcinoma overlooked at initial presentation, while in addition such metachronous colorectal carcinoma is often identified at a more ad-

*Correspondence to: Hideya Takeuchi, The Institute of Gastroenterology of Hofu, 14-33 Eki-minami, Hofu, Yamaguchi 747, Japan

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TABLE I. Age, Sex, Location, and Stage of Synchronous Colorectal Adenocarcinomas in 9 Patients

Case	Age (yr)/sex	Proximal tumor		Distal tumor	
		Location	Stage	Location	Stage
1	36/F	Transverse	Advanced	Rectum	Early
2	77/M	Sigmoid	Advanced	Sigmoid	Early
3	82/M	Sigmoid	Early	Sigmoid	Advanced
4	58/M	Rectum	Advanced	Rectum	Advanced
5	66/M	Transverse	Early	Transverse	Advanced
6	65/M	Rectum	Advanced	Rectum	Early
7	83/M	Ascending	Advanced	Rectum	Advanced
8	71/M	Rectum	Advanced	Rectum	Early
9	71/M	Rectum	Advanced	Rectum	Early

vanced stage than a synchronous colorectal carcinoma [2,7]. The possibility of multiple lesions should therefore be considered when preoperatively examining patients with colorectal carcinoma.

There has been available evidence for the polyp–cancer sequence in patients with colorectal carcinoma [8–10]. Kune et al. [11] reported that colorectal polyps may have a sixfold increased risk of a colorectal carcinoma developing, and their presence is thought to be associated with an increased risk for metachronous colorectal carcinomas [8,12].

We examined the clinical features and the quality of preoperative examinations in patients with synchronous colorectal carcinoma and compared the incidence of associated benign polyps with findings in patients with a single malignant lesion.

MATERIALS AND METHODS

This investigation was based on an analysis of 225 Japanese patients who underwent resection for colorectal carcinoma in the Institute of Gastroenterology at Hofu, Japan, from January 1990 to December 1993. We excluded all patients with familial polyposis, ulcerative colitis or Crohn's disease. We did not investigate the incidence of hereditary nonpolyposis colorectal carcinoma. We used the criteria for multiple colorectal carcinomas established by Kaibara et al. [7]: each tumor had to have a definite histologic picture of malignancy, be distinctly separated by an intact bowel wall, clearly have no metastatic origin from another colorectal tumor by confirming that there was no evidence of other tumors preoperatively, and, for a synchronous carcinoma, each lesion had to be diagnosed within 6 months [13]. The findings of neoplastic polyps (tubular, tubulovillous and villous) were also recorded. The lesions were divided into proximal and distal carcinoma. In accordance with the General Rules for Clinical and Pathological Studies on Cancer of the Colon, Rectum and Anus [14], carcinoma limited to the mucosa or the submucosa, regardless of the presence of lymph node metastasis, was defined as early cancer; if not, it was classified as advanced cancer. Histology tests were used to confirm the malignancy. Based on pathology and surgery, the various carcinomas were classified as being located in one of six segments: the cecum, ascending colon, transverse colon, descending colon, sigmoid colon, or rectum. The chi-square test was used for statistical analysis.

RESULTS

Nine of 225 (4.0%) patients had synchronous colorectal carcinomas, and these patients had two lesions. All synchronous tumors were detected simultaneously. The male/female ratio within this group was 8:1, and the average age was 67.7 years for those with synchronous colorectal carcinomas (Table I). Synchronous colorectal carcinomas were located in the same anatomical segment in seven patients and were in different segments in two patients. The combinations of histological type were 1 advanced–advanced and 8 were advanced–early, with no early–early cases. The preoperative reliability of DCBE and colonoscopy is summarized in Table II. In the DCBE group, the entire length of the colon and rectum was visualized, but in two patients views of the proximal tumor were of poor quality. In the colonoscopy group, the endoscope could not be passed to the cecum because the lumen had narrowed due to tumor in three patients, and passage was prevented for technical reasons in one patient. The accuracy of the multiple lesions that could be diagnosed preoperatively was 55.6% by endoscopy and 66.7% by DCBE and together resulted in an overall preoperative accuracy of synchronous colorectal carcinoma of 77.8%. The remaining tumors were detected in the resected specimens. Table III shows the incidence of polyps in patients with a single colorectal carcinoma and synchronous colorectal carcinomas. In the group with synchronous carcinomas, there was a significantly higher incidence of benign polyps, compared to the findings in patients with a single carcinoma ($P < 0.05$).

DISCUSSION

In the two of nine synchronous colorectal carcinomas in which the lesions were located in different segments of

TABLE II. Quality of a Barium Examination and Colonoscopy for Preoperative Detection of Lesions in Patients With Synchronous Colorectal Adenocarcinoma*

	Barium examination		Colonoscopy	
Case	Proximal	Distal	Proximal	Distal
1	A	A	C	A
2	A	A	A	A
3	B	A	B	A
4	A	A	A	A
5	B	A	B	A
6	A	A	A	A
7	A	A	B	A
8	A	A	A	A
9	A	B	A	A

*A, examined completely and detected; B, examined incompletely and not detected; C, not examined for technical reasons.

TABLE III. Incidence of Colorectal Polyps in Patients With Colorectal Single and Multiple Adenocarcinoma

	Total no.	Patients with polyps
Single carcinoma	216	62*
Multiple carcinomas	9	6*

*$P < 0.05$.

the colon and rectum, the surgical approach had to be altered because of a lesion at a second site. If a second carcinoma in a different anatomical area is not detected preoperatively, the lesions would likely require additional surgical treatment. It is therefore essential to ascertain preoperatively whether a second lesion exists.

Although other workers have reported that the rate of a successful total colonoscopy from anus to cecum was 75% on the average [15], colonoscopy is currently regarded as the most accurate method for the diagnosis of colorectal carcinoma [12,16]. The predominance of colonoscopy over DCBE has also been recognized [6]. However, when a distal tumor is at an advanced stage, it is difficult to make a complete examination of the remnant colon because views of the intestinal tract are obstructed by the distal tumor. According to our observations, when a distal tumor was advanced, three of four proximal tumors were not detected preoperatively. By contrast, using DCBE, the entire length of the colon and rectum can be visualized in all patients with synchronous colorectal carcinomas. But, when the distal tumor was advanced, two of four cases could not be accurately detected preoperatively. DCBE is still not completely reliable with regard to detection of all lesions. Tate et al. [12] reported that one reason the quality of DCBE is unsatisfactory in the case of synchronous colorectal carcinomas is the inhibition of effective bowel preparation by coexisting tumors. It could be stated that a good surgeon could detect malignant lesions by palpation at laparotomy, but Hancock [1] has shown that such intraoperative palpation is not always a sensitive method, especially when the tumor is at an earlier histological stage. On the other hand, intraoperative endoscopy allows for a complete examination to determine whether concurrent lesions may have been overlooked [3,4,17], and good results have been noted [18]. Intraoperative endoscopy is one available method to perform a complete examination of the colon and rectum. However, it is time-consuming and makes closure of the abdomen difficult since the bowel becomes distended with air [12].

The incidence of benign polyps ranges from 12% to 62% of patients with a single carcinoma [8,19] and from 57% to 86% of patients with synchronous carcinoma [8,20]. We noted a significantly higher incidence of benign polyps in those with synchronous colorectal carcinomas, compared to findings in patients with a single carcinoma. Cunliffe et al. [5] reported that the entire colorectal mucosa is likely to be unstable and at risk for malignant transformation in patients with multiple colorectal carcinomas. Bussey et al. [21] reported that in patients with colorectal carcinoma with benign polyps the incidence of metachronous colorectal carcinoma was twice that of patients without polyps. Based on these findings, if synchronous polyps are identified in patients with synchronous colorectal carcinomas, they should be removed either at the time of endoscopic examination or at surgical resection to reduce the risk of metachronous carcinoma.

Thus, intensive pre- and intraoperative examinations to identify any concurrent colorectal carcinomas may reduce the risk of metachronous carcinomas, and if synchronous polyps are present in patients with synchronous colorectal carcinomas, they should be ablated.

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